IN THE CLAIMS:

Please cancel claims 1-15 without prejudice or disclaimer, and substitute new Claims 16-30 therefor as follows:

Claims 1-15 (Cancelled).

16. (New) An optical communication system, comprising:

a transmitter for generating a phase-modulated optical signal (Sa, Sb, ..., Sk);

a receiver for receiving the phase-modulated optical signal;

an optical communication link between the transmitter section and the receiver section,

the optical communication link being a dispersion-managed optical communication link comprising dispersion-compensating elements propagating the phase-modulated optical signal at substantially constant optical power, and

the receiver comprising a dispersive element having a prescribed dispersion, the dispersive element receiving and converting the phase-modulated optical signal into a corresponding intensity-modulated optical signal, and an optical intensity detector fed with the intensity-modulated optical signal.

17. (New) The optical communication system of claim 16, wherein the transmitter comprises an optical carrier source generating an optical carrier, and a phase modulator driven by a modulating signal for imparting to the optical carrier a phase modulation.

18. (New) The optical communication system of claim 17, wherein the optical carrier source comprises a laser, and the phase modulator comprises a $LiNbO_3$ modulator.

19. (New) The optical communication system of claim 17, wherein the modulating signal is coded in a return-to-zero format.

20. (New) The optical communication system of claim 16, wherein the receiver comprises an optical power splitter, a first and a second dispersive elements with mutually opposite dispersion fed by the power splitter, a first and a second optical intensity detectors respectively fed by the first and second dispersive elements and generating a first and a second electrical signals, and a subtractor for subtracting the first electrical signal from the second electrical signal.

21. (New) The optical communication system of claim 16 or 20, wherein the dispersive element comprises one among an optical fiber section and a fiber Bragg grating.

22. (New) The optical communication system of claim 16, wherein the optical communication link comprises at least one optical communication link section comprising a dispersion-compensated optical fiber span and an optical amplifier.

23. (New) The optical communication system of claim 22, wherein said dispersion-compensated optical fiber span comprises one among a step-index optical fiber and non-zero dispersion-shifted optical fiber.

24. (New) The optical communication system of claim 22, wherein the dispersion-compensated optical fiber span comprises at least one dispersion-compensating element.

25. (New) The optical communication system of claim 24, wherein the dispersion-compensating element comprises one among a dispersion-compensating optical fiber, a transmission fiber and a fiber Bragg grating.

26. (New) The optical communication system of claim 22, wherein the optical amplifier comprises one among an erbium-doped fiber amplifier, a semiconductor optical amplifier, an optical parametric amplifier and a Raman optical amplifier.

27. (New) The optical communication system of claim 16 or 17, wherein the transmitter comprises at least two transmitter units, each one generating a respective phase-modulated optical signal (Sa, Sb, ..., Sk), the phase-modulated optical signals generated by different transmitter units being differentiated by wavelength, and a wavelength multiplexer receiving the phase-modulated optical signals generated by different transmitter units and generating a wavelength division multiplexed optical signal S (Sa, Sb, ..., Sk); and

the receiver comprises a wavelength demultiplexer receiving and demultiplexing the wavelength division multiplexed optical signal.

28. (New) The optical communication system of claim 27, wherein the dispersive element is placed upstream the wavelength demultiplexer in the light propagation direction.

29. (New) The optical communication system of claim 27, wherein the receiver comprises at least two receiver units, each one comprising a respective dispersive element downstream the wavelength demultiplexer in the light propagation direction.

30. (New) A method of optically transmitting information, comprising:

generating a phase-modulated optical carrier according to the information to be transmitted;

propagating the modulated optical carrier through an optical link; and

receiving and demodulating the modulated optical carrier,

said propagating the modulated optical carrier comprising managing a dispersion of the optical link to keep almost constant the optical power of the phase-modulated optical carrier, and

said receiving and demodulating the modulated optical carrier comprising converting the phase-modulated optical carrier into a corresponding intensity-modulated optical carrier by subjecting the phase-modulated optical carrier to a prescribed dispersion, and demodulating the intensity-modulated optical carrier.

IN THE ABSTRACT:

Replace the abstract originally provided on the cover sheet of the PCT application with the new abstract as follows. A new abstract numbered page 30 is enclosed as the last page of the application following the claims.

ABSTRACT OF THE DISCLOSURE

An optical communication system has a transmitter generating a phase-modulated optical signal (Sa, Sb,..., Sk); a receiver for receiving the phase-modulated optical signal; an optical communication link between the transmitter section and the receiver section. The optical communication link is a dispersion-managed optical communication link having dispersion-compensating elements propagating the phase-modulated optical signal at substantially constant optical power. The receiver has a dispersive element having a prescribed dispersion, the dispersive element receiving and converting the phase-modulated optical signal into a corresponding intensity-modulated optical signal, and an optical intensity detector fed with the intensity-modulated optical signal.